Plant Cell, Tissue and Organ Culture **33:** 353–356, 1993.

CONTENTS Volume 33 1993

Volume 33 No. 1

Review

Rhizogenesis and root growth of *Carica papaya* L. *in vitro* in relation to auxin sensitive phases and use of riboflavin 1
R.A. Drew, J.A. McComb, J.A. Considine

Original papers

***Agrobacterium tumefaciens*-mediated transformation of several *Rubus* genotypes and recovery of transformed plants** 9
M.A. Hassan, H.J. Swartz, G. Inamine, P. Mullineaux

Medium-term conservation of mature embryos of coconut 19
B. Assy-Bah, F. Engelmann

***In vitro* culture of Vanhoutte's spirea explants from 'secondary cultures' and dormant stems forced in solutions containing plant growth regulators** 25
G. Yang, P.E. Read

Protoplasts to plants of Gentianaceae. Regeneration of lisianthus (*Eustoma grandiflorum*) is affected by calcium ion preconditioning, osmolality and pH of the culture media 31
I.E.W. O'Brien, G.C. Lindsay

Direct root tip conversion of *Catasetum* into protocorm-like bodies. Effects of auxin and cytokinin 39
S. Colli, G.B. Kerbauy

Improvement of regeneration ability of androgenetic embryos by early anther transfer in maize 45
D. Barloy, M. Beckert

Use of carbon dioxide enrichment to obtain adult morphology of grapevine *in vitro* 51
J.C. Fournioux, R. Bessis

***In vitro* response of apical bud explants from mature trees of jackfruit (*Artocarpus heterophyllus*)** 59
M.N. Amin, V.S. Jaiswal

Kinetic studies of embryo development and nutrient utilization in an alfalfa direct somatic embryogenic system 67
P.D. Denchev, A.I. Kuklin, A.I. Atanassov, A.H. Scragg

Glycerol stimulation of chlorophyll synthesis, embryogenesis, and carboxylation and sucrose metabolism enzymes in nucellar callus of 'Hamlin' sweet orange 75
J.C.V. Vu, R.P. Niedz, G. Yelenosky

Effect of cytokinins on plastid development and photosynthetic polypeptides during organogenesis of *Pinus ponderosa* Dougl. cotyledons cultured *in vitro* 81
A. Mazari, E.L. Camm

Arrest of somatic embryo development in grapevine: histological characterization and the effect of ABA, BAP and zeatin in stimulating plantlet development 91
I. Goebel-Tourand, M.-C. Mauro, L. Sossountzov, E. Miginiac, A. Deloire

Volume 33 No. 2

Thidiazuron: a potent cytokinin for woody plant tissue culture 105
C.A. Huetteman, J.E. Preece

Long-term *in vitro* storage of *Colocasia esculenta* under minimal growth conditions 121
J.J.E. Bessembinder, G. Staritsky, E.A. Zandvoort

Initiating cultures of *Halesia* and *Malus*: influence of flushing stage and benzyladenine 129
M.H. Brand

Regeneration of bulblets from twin scales of *Crinum macowanii in vitro* 133
M.M. Slabbert, M.H. de Bruyn, D.I. Ferreira, J. Pretorius

The influence of sucrose and an elevated CO_2 concentration on photosynthesis of photoautotrophic peanut (*Arachis hypogaea* L.) cell cultures 143
U. Groß, F. Gilles, L. Bender, P. Berghöfer, K.-H. Neumann

Induction, germination and shoot development of somatic embryos in cassava 151
C.J.J.M. Raemakers, J.J.E. Bessembinder, G. Staritsky, E. Jacobsen, R.G.F. Visser

Changes of 6-benzylaminopurine and 2,4-dichlorophenoxyacetic acid concentrations in plant tissue culture media in the presence of activated charcoal 157
A. Ebert, F. Taylor, J. Blake

Somatic embryogenesis from callus cultures of *Nardostachys jatamansi* 163
J. Mathur

A study of some factors affecting *Agrobacterium* transformation and plant regeneration of *Dendranthema grandiflora* Tzvelev (syn. *Chrysanthemum morifolium* Ramat.) 171
J.M. Lowe, M.R. Davey, J.B. Power, K.S. Blundy

Micropropagation of *Penstemon serrulatus* and iridoid formation in regenerated plants 181
H. Wysokińska

Organogenesis and embryogenesis in *Helianthus tuberosus* and in the interspecific hybrid *Helianthus annuus* × *Helianthus tuberosus* 187
C. Pugliesi, P. Megale, F. Cecconi, S. Baroncelli

Transient expression of GUS and anthocyanin constructs in intact maize immature embryos following electroporation 195
D.D. Songstad, F.G. Halaka, D.L. DeBoer, C.L. Armstrong, M.A.W. Hinchee

Plant regeneration from *in vitro* leaf culture of several *Gerbera* species 203
J.-P. Reynoird, D. Chriqui, M. Noin, S. Brown, D. Marie

A simple protocol for micropropagating diploid and tetraploid watermelon using shoot-tip explants 211
M.E. Compton, D.J. Gray, G.W. Elmstrom

Volume 33 No. 3

Special section on particle bombardment

Development and operation of five particle guns for introduction of DNA into plant cells 219
D.J. Gray, J.J. Finer

The Biolistic® PDS-1000/He device 221
J. Russell Kikkert

Direct DNA transfer using electric discharge particle acceleration (ACCELL™ technology) 227
D. McCabe, P. Christou

Development of the Particle Inflow Gun 237
P. Vain, N. Keen, J. Murillo, C. Rathus, C. Nemes, J.J. Finer

Development of an airgun device for particle bombardment 247
J. Oard

Development of a microtargeting device for particle bombardment of plant meristems 251
C. Sautter

General papers

Occurrence of L-DOPA and dopamine in plants and cell cultures of *Mucuna pruriens* and effects of 2,4-D and NaCl on these compounds 259
H.J. Wichers, J.F. Visser, H.J. Huizing, N. Pras

Nutrient utilization in liquid/membrane system for watermelon micropropagation 265
N.V. Desamero, J.W. Adelberg, A. Hale, R.E. Young, B.B. Rhodes

Comparison of tissue culture and whole plant responses to salinity in potato 273
P.S. Naik, J.M. Widholm

Endogenous growth regulator content in suspension cells of different male and female genotypes of asparagus 281
B. Campion, G. de Filippo, E. Caporali, G. Rossi, G. Marziani

Molecular cytogenetic analysis of repeated sequences in a long term wheat suspension culture 287
A.R. Leitch, T. Schwarzacher, M.L. Wang, I.J. Leitch, G. Šurlan-Momirovich, G. Moore, J.S. (P.) Heslop-Harrison

Embryo rescue in *Vicia faba* and *Vicia narbonensis* 297
T.B. Lazaridou, D.G. Roupakias, A.S. Economou

Anther culture of kale (*Brassica oleracea* L. convar. *acephala* (DC.) Alef.) 303
M. Kieffer, M.P. Fuller, J.-E. Chauvin, A. Schlesser

An efficient protoplast-to-plant system for the hybrid ornamental shrub, *Weigela* × *florida* cv. Bristol Ruby (*Caprifoliaceae*) 315
S.J. Ochatt

Establishment of hairy root cultures of *Datura stramonium*. Characterization and stability of tropane alkaloid production during long periods of subculturing 321
I.E. Maldonado-Mendoza, T. Ayora-Talavera, V.M. Loyola-Vargas

Callus friability and somatic embryogenesis in *Hevea brasiliensis* **331**
P. Montoro, H. Etienne, N. Michaux-Ferrière, M.-P. Carron

Research notes

***In vitro* propagation as an aid for cloning of *Morus laevigata* Wall** **339**
R. Islam, A. Zaman, O.I. Joarder, A.C. Barman

Comparison of decontamination methods used in initiation of banana tissue cultures from field-collected suckers **343**
S.D. Hamill, S.L. Sharrock, M.K. Smith

Instructions to authors **247**

Author index / Volume contents **351**